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The Dynamics of Political Party Support and Egocentric Economic Evaluations: the Scottish Case

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We explore the dynamics of the Scottish National Party (SNP) support using the British Household Panel Survey (BHPS) during 1999-06. We study the relative importance of political sentiments and egocentric economic evaluations by disentangling the effects of state dependence and unobserved heterogeneity by gender. Egocentric economic evaluations constitute an important determinant of SNP support over the entire period, being this effect stronger among the male electorate. The results are consistent with the electors holding the incumbent Labour Party accountable for their personal financial situation, though financial security augments the nationalist propensity among partisan voters. Furthermore, retrospective economic evaluations form a significant determinant of incumbent Labour Party support in both the 1999-02 and 2003-06 intervening electoral cycles.

Key Words: egocentric economic evaluations, political preferences, unobserved heterogeneity, voting
Subject Classification: C23, C25, D72

1. INTRODUCTION

How important are economic evaluations in political party support? Do egocentric economic perceptions indicate distinct political behaviour by gender or partisanship? We analyse these questions by exploring the dynamics of political party support and egocentric economic evaluations in Scotland during 1999-2006. Our investigation has a double aim: on one hand, to analyse the relative importance of political sentiments in the evolution of SNP support and, on the other, to test the egocentric ("pocketbook") economic voting hypothesis.

Utilising the Scottish extension sample from the BHPS, we find that the impact of egocentric economic evaluations varies by partisan attachment and gender, and that failure to study separately the partisan electorate can lead to erroneous conclusions about the role of economic evaluations. In particular, regarding the whole electorate, egocentric economic evaluations exert a stronger influence on male SNP support, while initial party affiliation constitutes the most important party support determinant among the partisan subsamples (regardless of gender). Moreover, financial stability and optimism augment partisan voters' support for the (opposition) SNP instead of the (incumbent) Labour Party thus, reversing the prediction of economic voting theories among the partisan electorates. Finally, concerning

the entire electorate, the electors hold the incumbent government (Labour) party accountable for their personal financial situation.

To ensure that our analysis is not merely capturing determinants of nationalist propensity and to account for outflows from the Labour party to parties other than the SNP, we additionally estimate models of incumbent Labour Party support. Employing the Labour support indicator produces the mirror image of the initial estimates for SNP support: the economic evaluations increasing SNP support reduce the incumbent Labour party support and *vice-versa*.

As an additional validation test of the economic voting hypothesis, accounting for the dynamics triggered in different phases of the intervening electoral cycles, we estimate (incumbent) Labour support models for the 1999-2002 and 2003-2006 electoral cycles. The estimates clearly indicate that retrospective economic evaluations constitute an important determinant of the incumbent party support during both electoral cycles.

Studies such as Evans and Pickup (2010) and Johnston *et al.* (2005) provide evidence against economic voting theories and in favour of the endogeneity argument, *i.e.,* that individual economic evaluations are conditioned by political preferences rather than *vice-versa*. Evans and Pickup (2010) conclude that the incumbent presidential approval and party identification affect egocentric evaluations while the reverse does not hold. Johnston *et al.* (2005) find that upon controlling for prior elections' vote, egocentric evaluations have no effect. None of these studies disaggregates by either gender or party proximity.

Our results extend the findings and conclusions of Sanders and Brynin (1999), Evans and Andersen (2006), Nadeau *et al.* (2012) and Pickup and Evans (2013) in two important respects. On one side, Sanders and Brynin (1999) find that economic perceptions exert important indirect effects on voters' preferences although ideological change variables, when included in the same model, outperform changes in economic evaluations. Similarly, Evans and Andersen (2006) conclude that the impact of lagged party support on (sociotropic) economic evaluations is consistently stronger than the effects of concurrent and retrospective economic evaluations on party support. In an international comparative study, using instrumentation Nadeau *et al.* (2012) conclude that (sociotropic) economic evaluations are significant, although ideology, past vote recall and partisanship exert more powerful influences.[1] These findings are in agreement with our result that for the partisan fraction of the electorate the impact of egocentric evaluations is reduced and, therefore, that failure to study separately the partisan electorate can lead to erroneous conclusions about the impact of egocentric economic evaluations.

On the other side, Pickup and Evans (2013) conclude that long-term differences in economic evaluations across individuals do influence party support, while short-term economic evaluations do not, underlining the need to employ panel data for a longer time period. Indeed, we find that the most important party support determinant for the male electorate, other than initial support, is consistently expecting uncertain/worse finances. Further, among the partisan electorate consistent positive financial expectations and satisfactory current finances are the principal egocentric determinants of SNP support for males and females, respectively.

Our estimates account for initial political preferences, gender, and partisanship strength heterogeneity. Moreover, we incorporate dynamics, employ compact unbalanced and balanced panel sample selection mechanisms and account for unequal sample selection probabilities. To the best of our knowledge, the present study is unique in investigating the egocentric economic voting hypothesis and analysing

longitudinal party support by both partisan proximity and gender.[2]

The paper is organised as follows. Section 2 presents and discusses data issues. Section 3 outlines the estimation method, discusses sample selection and attrition issues, and the treatment of initial conditions. Section 4 is devoted to the analysis of the estimation results, first discussing the key determinants of SNP support and the importance of egocentric economic evaluations. Second, it analyses the incumbent Labour Party support and the validity of the economic voting hypothesis over the two intervening electoral cycles in the period under study. Section 5 concludes.

2. THE DATA

We use waves 9 to 16 of the BHPS, including the Scotland extension sample, spanning the period 1999-2006. This dataset contains information from a very rich questionnaire addressed to about 1,500 Scottish households on a yearly basis. In addition, we have access to local authority district codes at the household level via the special conditional access, medium-level geographical identifiers, component of the BHPS, which allows us to control for intra-Scottish regional variation in political party preferences.[3,4] Since our main interest is the longitudinal evolution of political party preferences and voting intentions, accounting for initial conditions, we consider respondents that are aged 16 or more and that participate in the survey over at least 3 consecutive periods (permitting inclusion of both dynamics and initial period political affiliation). The choice of age is motivated by the Age of Legal Capacity (Scotland) Act 1991 and by the fact that voting age was reduced to 16 for the 2014 Scottish independence referendum (yet the number of individuals aged below 18 is very small). In addition, the main samples analysed consider only respondents present in 1999 (to facilitate initial conditions estimation) that have no missing values (to allow for lagged party support) in any of the covariates used in the estimations. These compact unbalanced panels consist of 5,059 male and 5,580 female observations, respectively. A discussion of alternative estimation samples and attrition issues is relegated to Section 3.

2.1. Measuring Political Party Preferences

The 'political party supported' is a derived variable from a sequence of follow-up questions asked in all waves of the BHPS. These questions are: (1) Generally speaking do you think of yourself as a supporter of any one political party? (2) Do you think of yourself as a little closer to one political party than to the others? (3) If there were to be a general election tomorrow, which political party do you think you would be most likely to support? Respondents are asked question (2) only if they answered 'No' to question (1) and are asked question (3) only if they answered 'No' to question (2). Finally, if the answer to any of the first two questions is 'Yes', respondents are also asked question (4) Which party do you regard yourself as being closer to than the others?

From the above set of BHPS questions we define the dependent variable as a binary indicator of party support taking the value of one if the individual's stated party in either question (3) or (4) is the SNP, and zero otherwise. The corresponding answers to questions (3) and (4) are given in Tables 1 and 2.

We distinguish between two types of respondents or voters, henceforth referred to as partisans and non-partisans. We define as partisans those respondents that consistently (*i.e.* in every year of individual sample membership) answered 'Yes'

to either question (1) or question (2), and non-partisans (ideologically neutral) as those that were repeatedly asked question (3). Initially we consider joint estimation including both subsamples by summing the responses of questions (3) and (4). In a second stage we consider the two subsamples separately to test whether partisanship produces differential political party preference underlying determinants, but disregard non-partisan estimates due to an insufficient number of observations.

Defining the dependent variable as an indicator of SNP support is corroborated by the transition probability matrices reported in Tables 3 and 4, where the majority of outflows/inflows of SNP supporters correspond to gains/losses of the governing Labour Party over the period analysed. To account for outflows from the Labour party to parties other than the SNP, an event not captured by our specification of the dependent variable, we will construct an alternative Labour Party support indicator. Our findings indicate that the estimates conduce to the same conclusions independently of the dependent variable specification.

TABLE 1.—MALE RESPONDENTS: POLITICAL PARTY SUPPORTED

Party which would vote for tomorrow
Asked if: No political party supported/Not closer to one particular political party

Political Party	Year 1999	2000	2001	2002	2003	2004	Total
Labour	56	56	67	41	19	25	297
SNP	36	44	31	32	21	24	234
Conservative	13	7	9	11	6	5	65
Lib Dem, SDP	15	20	23	25	31	19	163
Green Party	1	0	1	3	3	1	11
other party	4	1	3	3	6	2	23
other answer	3	9	4	0	3	0	19
none	46	48	55	42	46	36	336
inapplicable	628	617	609	528	444	396	3,911
Total	**802**	**802**	**802**	**685**	**579**	**508**	**5,059**

Political party closest to
Asked if: Supporting a particular political party/Closer to one political party than t

Political Party	Year 1999	2000	2001	2002	2003	2004	Total
Labour	271	295	300	257	207	177	1,815
SNP	198	168	156	134	110	89	1,016
Conservative	101	99	87	76	68	65	606
Lib Dem /Lib/SDP	46	41	51	48	46	46	362
Green party	3	4	5	4	3	5	28
Plaid Cymru	0	0	0	1	0	0	1
other party	6	9	7	8	10	12	72
other answer	1	0	1	0	0	1	3
none	2	1	2	0	0	1	8
inapplicable	174	185	193	157	135	112	1,148
Total	**802**	**802**	**802**	**685**	**579**	**508**	**5,059**

1. Source: University of Essex, ISER, BHPS, Waves 9-16.
2. Sample includes individuals with Ti>2 and no missing values in any of the covariates in the (full sample compact unbalanced) estimations of Table 5.

The BHPS also includes a question about actual party voted for in the 1999 and 2003 Scottish elections. However, actual vote choice is likely to be a proxy for partisanship affiliation and political beliefs, which in turn can predetermine egocentric and sociotropic evaluations in actual elections. Hence, the association

between prior political affiliation and individual economic evaluations is more likely to be disentangled by using an indicator of political party support, particularly outside electoral periods (Evans and Andersen, 2006, p.197).

TABLE 2.—FEMALE RESPONDENTS: POLITICAL PARTY SUPPORTED

Party which would vote for tomorrow

Asked if: No political party supported/Not closer to one particular political party

Political Party	Year 1999	2000	2001	2002	2003	2004	2005	2006	Total
Labour	72	58	72	51	28	23	25	19	348
SNP	47	55	43	26	23	29	17	22	262
Conservative	18	11	9	10	6	3	7	7	71
Lib Dem, SDP	14	30	32	17	21	19	13	7	153
Green Party	2	4	3	1	2	3	2	2	19
other party	2	0	0	0	1	3	1	0	7
other answer	6	3	4	0	1	1	0	0	15
none	51	59	57	43	50	42	24	29	355
inapplicable	703	695	695	605	499	426	390	337	4,350
Total	**915**	**915**	**915**	**753**	**631**	**549**	**479**	**423**	**5,580**

Political party closest to

Asked if: Supporting a particular political party/Closer to one political party than to the others

Political Party	Year 1999	2000	2001	2002	2003	2004	2005	2006	Total
Labour	326	340	355	284	233	194	180	153	2,065
SNP	151	139	121	125	88	73	73	61	831
Conservative	143	139	127	111	96	82	71	65	834
Lib Dem /Lib/SDP	70	66	77	71	69	62	58	52	525
Green Party	6	5	7	6	6	9	4	4	47
other party	5	5	6	6	6	6	4	1	39
none	2	1	2	2	1	0	0	1	9
inapplicable	212	220	220	148	132	123	89	86	1,230
Total	**915**	**915**	**915**	**753**	**631**	**549**	**479**	**423**	**5,580**

1. Source: University of Essex, ISER, BHPS, Waves 9-16.

2. Sample includes individuals with Ti>2 and no missing values in any of the covariates in the (full sample compact unbalanced) estimations of Table 6.

The determinants of individual political adherence/affiliation are typically unobserved and fairly hard to quantify, one can feel loyal to certain political principles and at the same time feel closer to more than one political party, changing actual political party support over time. To measure the degree of political party attachment over time we use an additional question asked to those respondents that consider themselves as supporters of or feel closer to one particular party (*i.e.,* respondents that gave an affirmative answer to either question (1) or question (2) above). They are asked whether they consider themselves a very strong, fairly strong or not very strong party supporter. The corresponding variable, termed 'strong party support', will refer to individuals having indicated either very or fairly strong party support.

Nationalist sentiments determining party affiliation could be captured by the perceived nationality variable in the BHPS, but this question is only available for the years 1999, 2002, 2003 and 2006. As a robustness test, we estimate all models including a variable indicating whether an individual feels Scottish/more Scottish in 1999 (treating perceived nationality as time-invariant). Although this variable

generally enters all models with statistically significant positive coefficients, our results and conclusions remain unaltered.

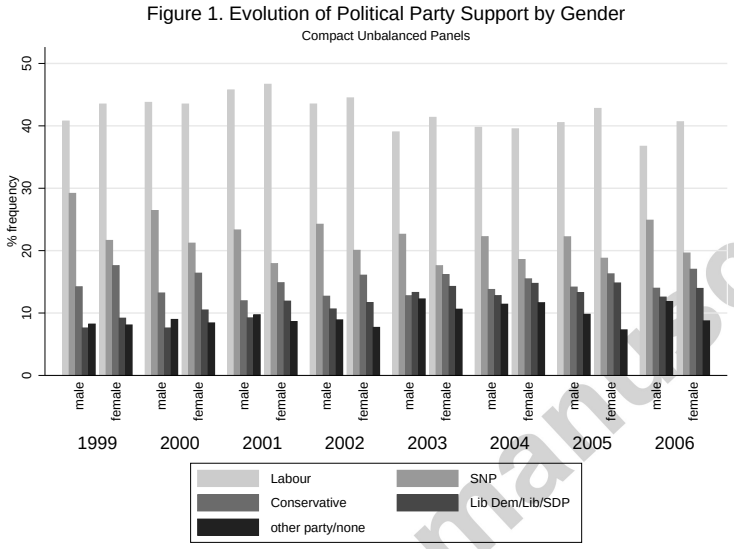

FIG. 1 Evolution of Political Party Support by Gender.

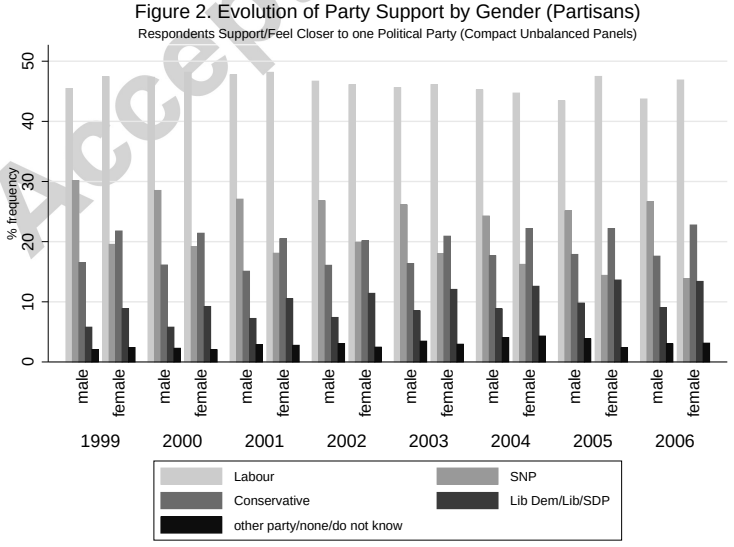

FIG. 2 Evolution of Party Support by Gender (Partisans).

Figures 1 and 2 display the longitudinal evolution of aggregate political party support from the entire sample (non-partisan and partisan) and from the partisan subsample, respectively. Figure 1 reveals that the incumbent Labour party is the

majority party, while the SNP is the second most popular party regarding both genders throughout the period, being Labour support generally higher among female respondents and SNP support higher among male respondents. Considering only partisan respondents, Figure 2 reveals that the SNP remains the second most supported party only among male partisans and falls to the third place (behind the Conservative party) among female partisans. That men are markedly more likely than women to support the SNP is a well known feature of the Scottish electorate, but empirical works trying to explain it are scarce. Using the 2007 Scottish Election Study and the SNP membership survey, Johns *et al.* (2011) find that the main factor explaining the gender gap in SNP support is that women are less supportive of independence.

2.2. Egocentric Economic Evaluations

Economic voting models establish that changes in the relative popularity of the incumbent government/opposition party are influenced by voters' perceptions of economic conditions. Depending on the model specification, these perceptions can be about current, past or future economic conditions. There are two dimensions of economic evaluations: egocentric/egotropic (about the personal economic situation) and sociotropic (about national economic conditions). The BHPS includes three questions about egocentric economic perceptions referring to the respondent's current, past and future financial situations, but unfortunately it does not include sociotropic questions. The existing empirical evidence, however, suggests that sociotropic evaluations have little effect on political support since they are strongly conditioned by party affiliation and prior opinions of the incumbent ruling party (see Evans and Andersen, 2006; Evans and Pickup, 2010).[5]

As Sanders and Brynin (1999) and Johnston *et al.* (2005) we include the current, retrospective and prospective egocentric economic evaluations. These measures, being of subjective nature, might be determined by individual attitudes (more or less optimistic personalities). Since egocentric economic evaluations are likely to be conditioned by personal experiences (see for instance, Evans and Andersen, 2006) we explicitly induce a correlation between the evaluations and unobserved heterogeneity by adding the individual-specific time-averages of egocentric economic evaluations. In addition, as a robustness check, we use annual equivalent household income (and its individual-specific time-average) as an objective income measure in the place of perceived current financial situation. The objective income measure effectively reproduces the impact of the subjective current financial situation measure.[6,7]

3. ESTIMATION METHODOLOGY

The empirical strategy is based on testing the impact of egocentric economic evaluations (retrospective, current and prospective) in a dynamic longitudinal model of political party support, accounting for initial political sentiments and time-varying political party attachment. Accordingly, we consider the dynamic binary party support model

$$y_{it} = \mathbf{1}\left(y_{it}^{*} > 0\right),\ y_{it}^{*} = \mathbf{x}_{it}\boldsymbol{\beta} + \gamma y_{it-1} + \varepsilon_i + \eta_{it};\ t = 1, ..., T_i;\ i = 1, ..., N; \qquad (1)$$

where y_{it}^* is a binary latent variable capturing political party support propensity. Individual i in period t is observed to be a supporter of a given party, as opposed to any other political party, if y_{it}^* (which can also be interpreted as the specific party related benefits) crosses the zero threshold. The vector $\boldsymbol{\delta} = (\boldsymbol{\beta}, \gamma)$ represents the unknown parameters to be estimated and $\mathbf{x}_{it}$ is a vector of contemporaneous explanatory variables for the ith voter in the tth time period. The composite error term in (1), $\nu_{it} = \varepsilon_i + \eta_{it}$, captures the unobserved heterogeneity underlying individual party support preferences, being decomposed into an individual-specific component $\{\varepsilon_i\}_{i=1,...,N}$ and an individual time-specific effect η_{it}.

The explanatory variables in $\mathbf{x}_{it}$ include the 'strong party support'(political party attachment) variable and the three (current, retrospective, prospective) egocentric economic perception variables described in the previous section, together with their respective individual-specific time-averages. All models incorporate a standard set of socioeconomic control variables. These include age group, marital status, employment status, university degree, an indicator of self-reported health, number of children, outright/mortgage house ownership and respective Scottish local authority.

Unlike earlier studies such as Evans and Andersen (2006), Johnston *et al.* (2005) and Sanders and Brynin (1999) we undertake estimations for male and female voters separately for three important reasons. Primarily, the longitudinal evolution of political party support (Figures 1 and 2) indicates higher male SNP support frequencies during the entire period under analysis. Secondly, the normality assumption for the unobserved individual heterogeneity underlying heterogeneous political preferences (see eq.(3)) is more likely to be met when employing a rather homogeneous sample. Thirdly, recent studies such as Dhaval *et al.* (2016) indicate distinct female voting participation patterns and differential gender-related determinants of voting preferences.

3.1. Initial Conditions

We date observations starting at $t = 0$ so that the first self-reported political party supported by the ith individual is y_{i0}. Given a random draw i from the underlying population and $t = 1, 2, ..., T$, and assuming η_{it} in equation (1) is an *iid* idiosyncratic error disturbance with *cdf* F conditional on ε_i, the dynamic unobserved effects model for individual party support is

$$Pr(y_{it} = 1|y_{it-1}, ..., y_{i0}, \mathbf{x}_i, \varepsilon_i) = F(\mathbf{x}_{it}\boldsymbol{\beta}+\gamma y_{it-1} + \varepsilon_i),\ t = 1, ..., T_i. \qquad (2)$$

It is assumed that ε_i is additive inside the *cdf* and that upon conditioning on the vector of contemporaneous explanatory variables $\mathbf{x}_{it}$ and ε_i, the dynamics are of first-order.[8] Treating ε_i as a random (unobserved) variable drawn with $(y_i, \mathbf{x}_i)$, and assuming $\varepsilon_i|\mathbf{x}_i \sim N(0, \sigma_\varepsilon^2)$, provides consistent parameter estimates only in the case of a static model. Including y_{t-1} raises the question of how we treat y_{i0}, *i.e.,* the initial conditions problem (Heckman 1981a,b).[9]

The presence of ε_i in equation (2) invalidates the assumption of exogeneity of party support in 1999 since the start of the sample is unlikely to coincide with the initiation of the stochastic process determining party support preferences. State dependence and individual heterogeneity offer "diametrically opposite" explanations of habit persistence (Hsiao, 2003, p.216). Considering otherwise identical individuals, it is possible that those who have supported a particular party in the past will amend their preferences determining propensities towards future voting intentions

(the so-called swing voters): an entirely behavioural effect that could be attributed to approval/disapproval of party policies.[10]

Alternatively, individuals may differ in specific unobservables affecting their probability of political affiliation, while at the same time not being influenced by previous voting behaviour or party performance. If such unobservables are correlated over time, and are not appropriately controlled for, past party support may turn out to be the overriding determinant of future support preferences, since it acts as proxy for the temporally persistent unobservables. This is what Heckman (1981a, 1981b) terms as "spurious state dependence" as opposed to "true (structural) state dependence".

TABLE 3.—MALE VOTERS: POLITICAL PARTY SUPPORT TRANSITION PROBABILITIES MATRIX, (1999-2006)

PARTY SUPPORTED **frequency (transition count)**	**PARTY SUPPORTED: frequency (transition count), Prob(y_{t+1} = v,$|y_t$ = v)**						
	Conservative	Labour	Lib dem /Lib/SDP	SNP	other	none	**TOTAL**
Conservative	**487**	22	14	16	7	25	571
	85.29	3.85	2.45	2.8	1.23	4.38	100
Labour	23	**1,570**	48	90	27	52	1,810
	1.27	**86.74**	2.65	4.97	1.49	2.87	100
Lib dem /Lib/SDP	10	36	**355**	17	7	8	433
	2.31	8.31	**81.99**	3.93	1.62	1.85	100
SNP	15	103	30	**860**	20	31	1,059
	1.42	9.73	2.83	**81.21**	1.89	2.93	100
other	8	16	8	8	**70**	10	120
	6.67	13.33	6.67	6.67	**58.33**	8.33	100
none	14	38	9	25	8	**170**	264
	5.3	14.39	3.41	9.47	3.03	**64.39**	100
TOTAL (t>1999):	557	1,785	464	1,016	139	296	**4,257**
Party support 2000-2006	13.08	41.93	10.9	23.87	3.27	6.95	**100**

1. Source: University of Essex, ISER, BHPS, Waves 9-16. **2.** Other: Plaid Cymru/Green/Other Party/other answer.
3. Off-diagonal row (r)/column (s) elements denote total voter outflow/inflow during (1999-2006), respectively.
4. r=1,…,R and s=1,…,S denote party preference (or other response), (v); r=s along the main diagonal, only.
5. Sample includes individuals with T_i>2 and no missing values in any of the covariates in the (full sample compact unbalanced) estimations provided in Table 5.

Voting preferences stem from two sources: an ideological component and a policy component. Partisan voters' voting preferences are formed on the basis of both ideological and policy related grounds with the weight of each determinant depending on the strength of individual-specific party bias. Non-partisans on the other hand, being ideologically neutral, will swing exclusively in response to government policies (see Liberini *et al.*, p.46, 2017). As indicated by the transition probability matrices for the entire electorate (Tables 3 and 4) initial party preferences are strongly persistent. There is, however, a non-negligible degree of variation in party preferences. The respective partisan transition matrices clearly indicate that swinging, though still present, is far less common among partisan voters (Appendix, Tables $A16 - A17$). Accordingly, it is expected that the impact of swing voting (captured by y_{t-1}) will diminish among the partisan electorate since their initial period party preferences are far more persistent: this is indeed verified by comparing the partial effects of y_{t-1} for the entire electorate to the corresponding partisan-only estimates (Tables 9-11).

Wooldridge (2005) proposes specifying a distribution of ε conditional on y_0, as opposed to Heckman's (1981b) proposal to obtain the joint distribution of all outcomes of the endogenous variables. We employ Wooldridge's (2005) solution to the initial conditions problem due to its computational simplicity. Using the Mundlak (1978)-Chamberlain (1984) specification we induce a correlation between ε_i and the time means of the nonredundant, *i.e.* time-varying, explanatory variables

taking the form of $\varepsilon_i = \overline{\mathbf{x}}_i\mathbf{a} + \xi_i$, where $\xi_i \sim iid\ N(0, \sigma_\xi^2)$ and is independent of $(\mathbf{x}_{it}, \eta_{it})$ for all $(i,\ t)$.[11]

TABLE 4.—FEMALE VOTERS: POLITICAL PARTY SUPPORT TRANSITION PROBABILITIES MATRIX, (1999-2006)

PARTY SUPPORTED frequency (transition count)	**PARTY SUPPORTED: frequency (transition count), Prob($y_{r,s,...} = v, |y_{r,s} = v_r$)**						
	Conservative	Labour	Lib dem /Lib/SDP	SNP	other	none	**TOTAL**
Conservative	**669**	25	39	14	3	24	774
	86.43	3.23	5.04	1.81	0.39	3.1	100
Labour	14	**1,786**	50	93	14	57	2,014
	0.7	**88.68**	2.48	4.62	0.7	2.83	100
Lib dem /Lib/SDP	30	36	**464**	19	4	12	565
	5.31	6.37	**82.12**	3.36	0.71	2.12	100
SNP	10	100	21	**726**	16	51	924
	1.08	10.82	2.27	**78.57**	1.73	5.52	100
other	3	17	8	11	**65**	6	110
	2.73	15.45	7.27	10	**59.09**	5.45	100
none	18	51	12	32	4	**161**	278
	6.47	18.35	4.32	11.51	1.44	**57.91**	100
TOTAL (t>1999):	744	2,015	594	895	106	311	**4,665**
Party support 2000-2006	15.95	43.19	12.73	19.19	2.27	6.67	**100**

1. Source: University of Essex, ISER, BHPS, Waves 9-16. **2.** Other: Green/Other Party/other answer.
3. Off-diagonal row (r)/column (s) elements denote total voter outflow/inflow during (1999-2006), respectively.
4. r=1,…,R and s=1,….,S denote party preference (or other response), (v); r=s along the main diagonal, only.
5. Sample includes individuals with T_i>2 and no missing values in any of the covariates in the (full sample compact unbalanced) estimations provided in Table 6.

Under the normality assumption, the distribution of ξ_i in its simplest form is $\xi_i|y_{i0}, \mathbf{x}_i \sim N(\zeta_0 + \zeta_1 y_{i0}, \sigma_\vartheta^2)$ where, ξ_i=$\zeta_0 + \zeta_1 y_{i0} + \vartheta_i$ and $\vartheta_i|\,(y_{i0}, \mathbf{x}_i) \sim N(0, \sigma_\vartheta^2)$. The sample log-likelihood for the dynamic correlated random effects (CRE) probit model corresponds to

$$\ln(L) = \sum_{i=1}^{N} \left\{ \ln \int \left[\prod_{t=1}^{T} \left[\Phi\left(\mathbf{x}_{it}\boldsymbol{\beta}+\gamma y_{it-1} + \zeta_0 + \zeta_1 y_{i0} + \overline{\mathbf{x}}_i\mathbf{a} + \vartheta\right)\right]^{y_{it}} \right.\right.$$

$$\left.\left. \left[1 - \Phi\left(\mathbf{x}_{it}\boldsymbol{\beta}+\gamma y_{it-1} + \zeta_0 + \zeta_1 y_{i0} + \overline{\mathbf{x}}_i\mathbf{a} + \vartheta\right)\right]^{1-y_{it}} \right] \left(\frac{1}{\sigma_\vartheta}\right) \phi\left(\frac{\vartheta}{\sigma_\vartheta}\right) d\vartheta \right\}, \qquad (3)$$

where it is assumed that $\eta_{it}|\,(\mathbf{x}_i, y_{it-1}, ..., y_{i0}, \vartheta_i) \sim N(0,1)$ and (Φ, ϕ) denote the *cdf* and *pdf* of the standard Normal, respectively. Importantly, controlling for initial conditions alone does not remove the dependence among y_{it-1} and ϑ_i. While in the random effects model ϑ_i is integrated out from the likelihood in eq.(3), pooled probit estimation is inconsistent as it ignores the presence of ϑ_i.[12]

Adopting the Mundlak (1978)-Chamberlain (1984) specification, the explanatory variables at time t are $\mathbf{s}_{it} \equiv (1, \mathbf{x}_{it}, y_{it-1}, y_{i0}, \overline{\mathbf{x}}_i)$ where $\overline{\mathbf{x}}_i = (T_i - 1)^{-1} \sum_{t=1}^{T_i} \mathbf{x}_{it}$ as suggested by Rabe-Hesketh and Skrondal (2013).[13] Including time-constant explanatory variables in $\mathbf{x}_{it}$ merely increases the explanatory power of the model since it is not possible to separately identify their partial effects from their partial correlation with the unobserved effect. Note that due to minimal within variation, we are unable to include individual-specific time means of regional and educational variables.

3.2. Estimation Samples: Attrition, the Scottish Extension Sample and Sampling Weights

In forming unbalanced panels we analyse contiguous sequences of non-missing data with $T \geqslant 3$ pertaining to the sample in 1999 *i.e.*, individuals can exit the sample after 2001 but cannot enter *ex post* 1999. Such a sample selection mechanism is used for example by Arulampalam *et al.* (2000) and Contoyannis *et al.* (2004), and suggested by Skrondal and Rabe-Hesketh (2014).[14] An alternative is to employ balanced panels since under independence among the sample selection rule and idiosyncratic shocks to y_{it}, the MLE is consistent provided that the initial conditions are appropriately dealt with (see Wooldridge, 2005). However, balancing entails efficiency losses due to discarding information, while in some cases balanced samples may contain an insufficient number of cross-sectional units across all time periods. In fact, regarding the entire electorate we estimate using balanced and compact unbalanced panels, though in the partisan subsamples we only perform unbalanced estimations due to insufficient observations.[15]

A further issue requiring particular attention is the use of the Scottish extension sample, noting that without doing so an independent country-level analysis would not have been possible.[16] Since our estimation samples include original BHPS members entering the sample before 1999, the assumption that initial observations stem from the same exogenous distribution or selection rule becomes questionable. In response to this, we also report estimates inclusive of an original sample membership dummy. In addition, we separately estimate models for the extension sample, but only for the entire electorate due to insufficient number of cross-sectional units over time in the subsamples.

Finally, we perform estimations using the available longitudinal sampling weights (from the latest wave in the sequence) to account for the different sample selection probabilities within the whole BHPS. These weights are proportional to the inverse of the selection probability per sampling unit, $1/\ \widehat{p}_{it}$.[17,18]

Under the ignorability assumption, initial period 1999 variables ($\mathbf{z}_{i0}$) determine attrition sufficiently well so that responses $s_{it} \in \{0, 1\}$ and covariates in the following periods are ignorable, that is

$$P(s_{it} = 1|y_{it}, y_{it-1}, \mathbf{x}_{it}, \mathbf{z}_{i0}) = P(s_{it} = 1|\mathbf{z}_{i0}), (t = 1, ..., T)\,. \tag{4}$$

Provided the assumption of s*election on observables* in equation (4) holds, maximum likelihood estimation using

$$\ln(L) = \sum_{i=1}^{N}\sum_{t=1}^{T}(s_{it}/\widehat{p_{it}})\ln(L_{it}) \tag{5}$$

is asymptotically efficient and $\sqrt{N}$-consistent (see Wooldridge, 2002, pp.125-6).[19,20]

4. ESTIMATION RESULTS

We start this Section with the analysis of the initial estimation results and the average partial effects (APEs) of the key determinants of SNP support, which include egocentric economic evaluations. We then use an alternative specification of the dependent variable to examine incumbent Labour Party support determinants. Finally, we test the economic voting hypothesis over the two intervening electoral cycles, $1999 - 2002$ and $2003 - 2006$.

4.1. Observed Heterogeneity

The estimation results for the joint and partisan samples are given in Tables 5-6 and Table 7, respectively. They clearly indicate a key set of determinants of political party support with varying effects by both partisanship and gender. These consist of previous period support, initial period support, strong party support and a combination of egocentric economic evaluation variables. A detailed analysis is undertaken employing the more informative APEs in the following Section.

The coefficients of initial SNP support enter all estimations with particularly strong and statistically significant effects that are much greater in magnitude than the coefficients of lagged support. This indicates a considerable correlation between the unobserved individual heterogeneity and the initial condition, which is notably accentuated among the partisan electorate. As a robustness test, we also estimate all models including a variable indicating whether an individual feels Scottish/more Scottish in 1999 (treating perceived nationality as time-invariant). Perceived nationality in 1999 enters the estimations with generally statistically significant positive coefficients, slightly reducing the estimated coefficients of initial SNP support and having a negligible effect on lagged SNP support. There is no discernible pattern regarding the remaining variables' coefficients and our conclusions remain unaltered (Appendix, Tables $A13 - A15$).

Independently of gender, the Glasgow regional control enters most estimations with sizeable negative effects on SNP support. University educated males are less probable to support the SNP (Table 5), whereas employed females are more likely to do so (Table 6). However, these educational and employment effects generally become statistically insignificant in the partisan estimates (Table 7). Other socioeconomic controls like self-assessed health and the number of children influence male and female support probabilities in opposite directions, though in the female case they are not always statistically significant. Males above 44 years old are less likely to support the SNP, but age is generally insignificant for females.

Finally, retrospective and prospective personal financial perceptions seem more important determinants of SNP support than current perceptions. As a robustness check, we also employ the (objective) annual equivalent household income (and its individual-specific time-average) instead of the subjective current financial situation measure and find that the corresponding estimates (Appendix, Tables $A10 - A12$) display no significant variation and are qualitatively similar to those in Tables $5 - 7$.[21]

TABLE 5.—MALE DYNAMIC CRE PROBIT MODELS OF SNP SUPPORT, 1999-2006

Unbalanced (I-IV)/Balanced (V-VIII)	I	II	III	IV	V	VI	VII	VIII
	Baseline	Sample Dummy	Weights	Extension	Baseline	Sample Dummy	Weights	Extension
Lagged SNP Support	0.658***	0.658***	0.712***	0.690***	0.727***	0.727***	0.761***	0.751***
SNP Supporter (1999)	3.417***	3.408***	3.405***	3.473***	3.467***	3.471***	3.344***	3.403***
Strong Party Support	0.265*	0.264*	0.306*	0.301*	0.367**	0.367**	0.416*	0.399**
m(Strong Party Support)	0.558**	0.557**	0.506*	0.583**	0.558*	0.556*	0.357	0.595*
Age 25-34	-0.449	-0.448	-0.278	-0.492	-0.227	-0.229	-0.264	-0.174
Age 35-44	-0.361	-0.360	-0.517	-0.623*	-0.384	-0.386	-0.883*	-0.431
Age >44	-0.628*	-0.627*	-0.576	-0.923**	-0.509	-0.511	-0.787	-0.607
Married/Civil Partnership	0.259	0.258	-0.127	0.318	-0.184	-0.182	-0.335	0.074
m(Married/Civil Partnership)	0.098	0.099	0.604	0.181	0.689	0.687	0.969*	0.439
Employed/Self-employed	-0.106	-0.106	-0.016	0.077	0.028	0.028	0.135	0.049
m(Employed/Self-employed)	0.236	0.237	0.142	-0.048	0.071	0.069	-0.277	0.125
University Qualifications	-0.578***	-0.576***	-0.594***	-0.632***	-0.829***	-0.827***	-0.912***	-0.809***
Excellent,Good/Very Good Health	-0.131	-0.132	-0.281*	-0.066	-0.173	-0.172	-0.351*	-0.096
m(Excellent,Good/Very Good Health)	0.551**	0.544*	0.777***	0.546*	0.808**	0.810**	1.055***	0.954**
Number of Children	0.312*	0.311*	0.381**	0.337*	0.515***	0.515***	0.507**	0.399*
m(Number of Children)	-0.418**	-0.408*	-0.476**	-0.389	-0.640***	-0.644***	-0.578**	-0.517*
Own House/Mortage	0.059	0.059	0.011	0.007	0.176	0.177	0.122	0.122
m(Own House/Mortage)	-0.133	-0.132	-0.118	-0.007	-0.075	-0.074	-0.022	0.088
Region: Scottish Local Authority								
Glasgow	-0.576*	-0.596*	-0.380	-0.480	-0.770*	-0.762*	-0.420	-0.535
Lothians	-0.232	-0.235	-0.101	-0.124	-0.260	-0.257	-0.252	0.070
Highlands, Islands	-0.008	-0.035	0.018	0.156	-0.598	-0.589	-0.723	-0.399
Central	0.036	0.036	0.089	0.196	0.110	0.110	0.195	0.483
West	-0.088	-0.086	-0.028	0.078	-0.427	-0.426	-0.373	-0.299
South	0.188	0.207	0.262	0.416	-0.566*	-0.572*	-0.414	-0.487
Mid-Scotland, Fife	0.086	0.082	0.094	0.072	0.149	0.150	0.131	0.377
Current Financial Situation								
Comfortably Financially	0.032	0.032	-0.012	0.044	0.315	0.315	0.228	0.195

TABLE 6.—FEMALE DYNAMIC CRE PROBIT MODELS OF SNP SUPPORT, 1999-2006

Unbalanced (I-IV)/Balanced (V-VIII)	I	II	III	IV	V	VI	VII	VIII
	Baseline	Sample Dummy	Weights	Extension	Baseline	Sample Dummy	Weights	Extension
Lagged SNP Support	0.524***	0.526***	0.525***	0.520***	0.399**	0.403**	0.354**	0.291
SNP Supporter (1999)	3.537***	3.526***	3.482***	3.619***	3.931***	3.892***	4.071***	4.096***
Strong Party Support	0.422***	0.422***	0.390***	0.480***	0.541***	0.540***	0.552***	0.703***
m(Strong Party Support)	-0.241	-0.241	-0.029	-0.315	-0.060	-0.042	0.438	-0.156
Age 25-34	-0.037	-0.040	0.149	0.254	-0.175	-0.158	-0.058	-0.152
Age 35-44	-0.057	-0.069	0.196	0.235	-0.025	-0.038	0.059	-0.110
Age >44	0.328	0.321	0.522	0.591	0.215	0.213	0.324	0.160
Married/Civil Partnership	-0.151	-0.152	-0.171	0.193	-0.287	-0.285	-0.036	0.039
m(Married/Civil Partnership)	-0.041	-0.039	-0.079	-0.426	0.165	0.155	-0.156	-0.177
Employed/Self-employed	0.455**	0.455**	0.371*	0.427*	0.404**	0.400**	0.281	0.398*
m(Employed/Self-employed)	0.035	0.041	0.321	0.031	-0.106	-0.105	0.429	-0.029
University Qualifications	-0.206	-0.201	-0.357*	-0.158	-0.444	-0.432	-0.517	-0.407
Excellent,Good/Very Good Health	0.012	0.012	0.073	-0.029	-0.076	-0.077	0.002	-0.033
m(Excellent,Good/Very Good Health)	-0.418*	-0.431*	-0.561**	-0.471*	-0.386	-0.422	-0.678	-0.628
Number of Children	-0.084	-0.083	-0.082	-0.107	-0.332*	-0.331*	-0.323*	-0.399*
m(Number of Children)	0.136	0.141	0.230	0.231	0.379	0.406*	0.570**	0.590**
Own House/Mortage	0.279	0.277	0.053	0.084	0.288	0.288	0.057	0.021
m(Own House/Mortage)	-0.753**	-0.746**	-0.408	-0.527	-0.848*	-0.775*	-0.429	-0.613
Region: Scottish Local Authority								
Glasgow	-0.372	-0.400	-0.463*	-0.542*	-0.705*	-0.787**	-0.484	-0.882*
Lothians	-0.129	-0.137	-0.001	-0.336	-0.337	-0.389	-0.359	-0.436
Highlands, Islands	0.424	0.394	0.479	0.238	-0.045	-0.133	-0.107	-0.363
Central	0.297	0.300	0.333	0.108	-0.027	0.005	0.142	-0.086
West	0.208	0.205	0.310	0.109	0.091	0.103	0.272	0.164
South	0.287	0.300	0.231	0.156	0.144	0.146	0.235	-0.176
Mid-Scotland, Fife	0.120	0.108	0.289	-0.038	-0.210	-0.228	0.164	-0.490
Current Financial Situation								

TABLE 7.—PARTISAN DYNAMIC CRE PROBIT MODELS OF SNP SUPPORT, 1999-2006

Unbalanced (I-VI)	I	II	III	IV	V	VI
	Baseline (Male)	Sample Dummy (Male)	Weights (Male)	Baseline (Female)	Dummy (Female)	Weights (Female)
Lagged SNP Support	0.766***	0.769***	0.941***	0.707**	0.708**	0.707**
SNP Supporter (1999)	6.271***	6.234***	6.566***	6.078***	6.070***	6.075***
Strong Party Support	0.487*	0.486*	0.557*	0.187	0.187	0.222
m(Strong Party Support)	0.519	0.507	0.561	-0.256	-0.260	-0.162
Age 25-34	-0.073	-0.067	-0.184	0.470	0.482	1.033
Age 35-44	-0.392	-0.394	-0.325	0.475	0.486	1.142
Age >44	-0.891	-0.898	-0.648	0.819	0.834	1.402*
Married/Civil Partnership	-0.103	-0.105	0.039	-0.291	-0.293	-0.305
m(Married/Civil Partnership)	1.245**	1.245**	1.093*	0.161	0.156	0.195
Employed/Self-employed	-0.011	-0.012	0.120	0.205	0.206	0.349
m(Employed/Self-employed)	0.514	0.509	0.251	-0.284	-0.276	-0.425
University Qualifications	-0.548	-0.540	-0.469	-0.404	-0.412	-0.773*
Excellent,Good/Very Good Health	-0.250	-0.251	-0.466	-0.223	-0.223	-0.302
m(Excellent,Good/Very Good Health)	0.904*	0.896*	1.667***	-0.154	-0.160	0.213
Number of Children	0.915***	0.914***	1.031***	-0.076	-0.076	-0.034
m(Number of Children)	-1.480***	-1.463***	-1.553***	-0.137	-0.125	-0.114
Own House/Mortage	0.202	0.201	-0.554	0.433	0.428	0.240
m(Own House/Mortage)	-0.587	-0.585	0.328	-0.897	-0.875	-0.679
Region: Scottish Local Authority						
Glasgow	-1.701***	-1.721***	-1.741***	-1.082*	-1.101*	-1.651***
Lothians	-0.530	-0.550	-0.248	-0.353	-0.368	-0.543
Highlands, Islands	0.160	0.121	0.051	-0.164	-0.194	-0.541
Central	-0.386	-0.384	-0.125	-0.508	-0.502	-0.721
West	-0.563	-0.565	-0.380	-0.497	-0.488	-0.558
South	0.097	0.131	0.185	0.391	0.398	0.197
Mid-Scotland, Fife	0.144	0.141	-0.120	0.049	0.026	-0.048
Current Financial Situation						

4.2. Average Partial Effects

Given the nonlinear nature of the CRE probit models the estimated parameters are only informative regarding the direction and relative effects of the covariates. To obtain a clear quantitative interpretation of the effects of key explanatory variables on the probability of SNP support we estimate the APEs based on

$$E\left[\Phi\left(\mathbf{x}_{it}\boldsymbol{\beta}+\gamma y_{it-1}+\zeta_0+\zeta_1 y_{i0}+\overline{\mathbf{x}}_i\mathbf{a}+\vartheta_i\right)\right], \tag{6}$$

where the expectation is over the distribution of $(y_{i0}, \overline{\mathbf{x}}_i, \vartheta_i)$. A consistent estimator is

$$N^{-1}\sum_{i=1}^{N}\Phi\left(\mathbf{x}_{it}\widehat{\boldsymbol{\beta}}_{\vartheta}+\widehat{\gamma}_{\vartheta}y_{it-1}+\widehat{\zeta}_{0\vartheta}+\widehat{\zeta}_{1\vartheta}y_{i0}+\overline{\mathbf{x}}_i\widehat{\mathbf{a}}_{\vartheta}\right), \tag{7}$$

where $\mathbf{b}_{\xi}=\mathbf{b}/\sqrt{(1+\widehat{\boldsymbol{\sigma}}^2_{\vartheta})}$ denotes a population-averaged parameter across the distribution of ξ, $\mathbf{b}=\left(\widehat{\boldsymbol{\beta}},\widehat{\gamma},\widehat{\zeta}_0,\widehat{\zeta}_1,\widehat{\mathbf{a}}\right)$, and $\widehat{\boldsymbol{\beta}}$, $\widehat{\gamma}$, $\widehat{\zeta}_0$, $\widehat{\zeta}_1$, $\widehat{\mathbf{a}}$ and $\widehat{\sigma}^2_{\vartheta}$ are the MLEs (see Wooldridge, 2005).[22]

We calculate changes of expression (7) with respect to selected elements of $\mathbf{x}_{it}$ and y_{it-1} to obtain the APEs given in Tables 8-11. We provide bootstrapped standard errors for the APEs using 250 bootstrap replications by resampling with replacement accounting for individual-level clustering. The only exception are the CRE estimations with sampling weights, where we perform 100 bootstrap replications.[23]

The strong statistical significance of the initial value of party support in Tables 5-7 indicates that initial conditions are clearly endogenous. However, accounting for initial conditions alone still provides inconsistent parameter estimates when ϑ_i is ignored by employing pooled estimation. This translates into particularly inflated APEs for lagged party support (overstating the role of swing voting) in Table 8, as opposed to the consistent CRE estimates given in Tables 9-11.

TABLE 8.—POOLED PROBIT AVERAGE PARTIAL EFFECTS OF LAGGED SNP SUPPORT, 1999-2006

	UNBALANCED				BALANCED			
	I	II	III	IV	V	VI	VII	VIII
	Baseline	Sample Dummy	Weights	Extension	Baseline	Sample Dummy	Weights	Extension
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
No initial conditions								
Male Voters	0.734***	0.732***	0.737***	0.735***	0.741***	0.739***	1.734**	0.734***
	(0.020)	(0.020)	(0.022)	(0.024)	(0.025)	(0.026)	(0.027)	(0.032)
Female Voters	0.716***	0.714***	0.716***	0.711***	0.711***	0.705***	1.718**	0.697***
	(0.020)	(0.021)	(0.023)	(0.023)	(0.030)	(0.032)	(0.034)	(0.038)
Partisan Males	0.871***	0.868***	0.880***					
	(0.018)	(0.019)	(0.021)					
Partisan Females	0.835***	0.834***	0.840***					
	(0.028)	(0.029)	(0.028)					
Initial conditions								
Male Voters	0.439***	0.439***	0.457***	0.460***	0.475***	0.474***	1.465**	0.476***
	(0.037)	(0.037)	(0.040)	(0.044)	(0.046)	(0.047)	(0.051)	(0.053)
Female Voters	0.370***	0.369***	0.365***	0.374***	0.362***	0.354***	1.365**	0.369***
	(0.041)	(0.041)	(0.045)	(0.043)	(0.046)	(0.045)	(0.052)	(0.053)
Partisan Males	0.468***	0.468***	0.504***					
	(0.075)	(0.074)	(0.081)					
Partisan Females	0.444***	0.443***	0.402***					
	(0.083)	(0.083)	(0.081)					

1. The corresponding estimates (and sample sizes) are provided in Tables A1-A6 in the Appendix.
2. Bootstrapped standard errors accounting for individual-level clustering. **3.** (I-VIII): 250 bootstrap replications. **4.** * p<0.10, ** p<0.05,

The most prominent APEs in the joint sample estimates generally stem from lagged SNP support. The magnitude of state dependence is markedly greater in the male estimates (Table 9), where previous period SNP support increases the probability of present support between 7 (unbalanced panels) and 8 (balanced panels) percentage points, whereas in the female estimates (Table 10) this effect varies between 5 (unbalanced panels) and 3 (balanced panels) points. In contrast, strong party support has a greater effect among the female electorate, noting that in the balanced female estimates the respective APEs surpass the lagged support partial effects. As indicated by (Table 6), balanced panel induced attrition diminishes the role of state dependence in female SNP support and augments the role of initial and strong party support.

TABLE 9.—MALE CRE PROBIT AVERAGE PARTIAL EFFECTS ON THE PROBABILITY OF SNP SUPPORT, 1999-2006

	UNBALANCED				BALANCED			
	I	II	III	IV	V	VI	VII	VIII
	Baseline	Sample Dummy	Weights	Extension	Baseline	Sample Dummy	Weights	Extension
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
Lagged SNP Support	0.071***	0.071***	0.078***	0.073***	0.078***	0.078***	0.086***	0.082***
	(0.022)	(0.022)	(0.011)	(0.025)	(0.028)	(0.028)	(0.016)	(0.030)
Strong Party Support	0.024*	0.024*	0.028**	0.027*	0.033**	0.033**	0.039**	0.037**
	(0.013)	(0.013)	(0.013)	(0.016)	(0.016)	(0.016)	(0.018)	(0.018)
Employed/Self-employed	-0.010	-0.010	-0.001	0.007	0.003	0.003	0.013	0.004
	(0.018)	(0.018)	(0.018)	(0.018)	(0.022)	(0.022)	(0.027)	(0.024)
University Qualifications	-0.050***	-0.050***	-0.052***	-0.055***	-0.070***	-0.070***	-0.080**	-0.070***
	(0.018)	(0.018)	(0.018)	(0.019)	(0.026)	(0.026)	(0.032)	(0.027)
Glasgow	-0.050*	-0.052**	-0.034	-0.042	-0.064*	-0.064*	-0.037	-0.047
	(0.026)	(0.026)	(0.024)	(0.031)	(0.038)	(0.038)	(0.047)	(0.046)
Comfortably Financially	0.003	0.003	-0.001	0.004	0.028	0.028	0.021	0.018
	(0.022)	(0.022)	(0.016)	(0.027)	(0.031)	(0.031)	(0.023)	(0.034)
Alright Financially	0.001	0.001	-0.011	0.004	0.024	0.024	0.007	0.02
	(0.020)	(0.020)	(0.015)	(0.023)	(0.028)	(0.028)	(0.022)	(0.032)
Just Getting by Financially	-0.008	-0.007	-0.020	-0.005	-0.011	-0.011	-0.024	-0.014
	(0.017)	(0.017)	(0.013)	(0.020)	(0.024)	(0.024)	(0.018)	(0.027)
Better Finances vs last yea	-0.015	-0.015	-0.018**	-0.027*	-0.004	-0.004	-0.008	-0.017
	(0.012)	(0.012)	(0.009)	(0.014)	(0.015)	(0.015)	(0.015)	(0.018)
Worse Finances vs last yea	0.023*	0.023*	0.021**	0.029*	0.025	0.025	0.024*	0.027
	(0.013)	(0.013)	(0.010)	(0.015)	(0.017)	(0.017)	(0.013)	(0.020)
Expect Better Finances	0.017	0.017	0.019*	0.019	0.024**	0.024**	0.027*	0.031**
	(0.011)	(0.011)	(0.010)	(0.013)	(0.012)	(0.012)	(0.014)	(0.015)
Uncertain/Expect Worse Fi	-0.021	-0.021	-0.018	-0.034**	-0.016	-0.016	-0.016	-0.022
	(0.014)	(0.014)	(0.012)	(0.016)	(0.016)	(0.016)	(0.016)	(0.019)
Sample-Size	4,257	4,257	4,257	3,334	2,954	2,954	2,954	2,324

Repeating this analysis for the partisan subsample (Table 11), we find that the

lagged and strong party support APEs estimates generally display lower statistical significance and magnitude. Moreover, the strong party support effect is now more prominent among the male electorate. A closer inspection of the coefficient estimates from the joint (Tables 5 and 6) and partisan samples (Table 7) indicates markedly greater initial support coefficient magnitudes in the latter. This is a major result as it indicates that partisan political party preferences are largely predetermined and shaped by initial conditions. That is, by the positive association between unobserved individual heterogeneity and initial party support.

The significant Glasgow regional control coefficients are generally more pronounced in the partisan subsamples than in the joint sample estimates and stronger among males, though statistical significance varies (see Tables 5, 6 and 7). This translates into notable APEs for Glaswegian male partisans that are around 7 percent less likely to be SNP supporters than their North Eastern partisan counterparts. This probability varies between 4 percent and 6 percent for female partisans (see Table 11).

Among the socioeconomic controls, two distinct gender-specific attributes consistently affect the SNP support probability in the joint sample estimates while not generally having an impact in the partisan subsample estimations. First, being employed produces a female gender-specific effect in favour of SNP support, though this vanishes in the partisan estimations. Employed (full/ part-time) and self-employed females are generally over 3 percent more likely to be SNP supporters according to the joint-sample estimated APEs (Table10), whereas employment has no effect on male support (Table 9). While not directly identifiable, this outcome could be due to a heightened interest in civic responsibility among employed females $-$*e.g.* Dhaval *et al.* (2016) find that employment augmenting welfare reforms in the US, increase female voting registration and participation.

TABLE 10.— FEMALE CRE PROBIT AVERAGE PARTIAL EFFECTS ON THE PROBABILITY OF SNP SUPPORT, 1999-2006

	UNBALANCED				BALANCED			
	I	II	III	IV	V	VI	VII	VIII
	Baseline	Sample Dummy	Weights	Extension	Baseline	Sample Dummy	Weights	Extension
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
Lagged SNP Support	0.049***	0.049***	0.050***	0.049***	0.033*	0.033*	0.027***	0.024
	(0.018)	(0.018)	(0.007)	(0.017)	(0.017)	(0.017)	(0.008)	(0.017)
Strong Party Support	0.035***	0.035***	0.032***	0.041***	0.041***	0.041***	0.040***	0.056***
	(0.010)	(0.010)	(0.008)	(0.012)	(0.013)	(0.013)	(0.010)	(0.013)
Employed/Self-employed	0.037**	0.037**	0.030**	0.036	0.030**	0.030**	0.020	0.031
	(0.015)	(0.015)	(0.012)	(0.024)	(0.015)	(0.015)	(0.013)	(0.019)
University Qualifications	-0.016	-0.016	-0.028*	-0.013	-0.032	-0.031	-0.035	-0.03
	(0.018)	(0.018)	(0.015)	(0.021)	(0.024)	(0.024)	(0.028)	(0.033)
Glasgow	-0.029	-0.031	-0.036*	-0.042**	-0.048*	-0.054**	-0.032	-0.062*
	(0.019)	(0.019)	(0.018)	(0.021)	(0.025)	(0.025)	(0.025)	(0.035)
Comfortably Financially	-0.006	-0.006	0.003	-0.007	-0.007	-0.007	0.001	0.009
	(0.022)	(0.022)	(0.016)	(0.021)	(0.024)	(0.024)	(0.018)	(0.032)
Alright Financially	0.006	0.006	0.014	0.003	0.012	0.012	0.021	0.024
	(0.021)	(0.021)	(0.015)	(0.021)	(0.023)	(0.023)	(0.017)	(0.031)
Just Getting by Financially	0.005	0.005	0.006	0.006	0.022	0.021	0.020	0.037
	(0.018)	(0.018)	(0.013)	(0.020)	(0.022)	(0.022)	(0.018)	(0.030)
Better Finances vs last year	-0.018**	-0.018**	-0.020***	-0.018	-0.011	-0.011	-0.005	-0.011
	(0.009)	(0.009)	(0.008)	(0.011)	(0.013)	(0.013)	(0.011)	(0.014)
Worse Finances vs last year	-0.010	-0.010	-0.007	-0.012	-0.007	-0.007	-0.001	-0.009
	(0.012)	(0.012)	(0.009)	(0.014)	(0.015)	(0.015)	(0.011)	(0.018)
Expect Better Finances	0.018*	0.018*	0.012	0.013	0.009	0.009	0.001	-0.002
	(0.011)	(0.011)	(0.009)	(0.013)	(0.012)	(0.012)	(0.010)	(0.014)
Uncertain/Expect Worse Fina	0.011	0.011	0.014	0.011	0.009	0.009	0.008	0.013
	(0.013)	(0.013)	(0.009)	(0.014)	(0.015)	(0.015)	(0.013)	(0.017)
Sample-Size	4,665	4,665	4,665	3,453	2,961	2,961	2,961	2,177

Second, holding a university degree has a remarkable negative effect on male support though this also vanishes in the partisan estimations. Specifically, having a university degree (as opposed to not having) reduces the male SNP support probability by at least 5 percent in the unbalanced and 7 percent in the balanced joint sample estimates (Table 9), underlining that we cannot separately identify

this effect from its partial correlation with unobserved individual heterogeneity. Among the female electorate this effect is less pronounced and generally statistically insignificant.

Recalling that other related studies such as Evans and Andersen (2006), Johnston *et al.* (2005), Sanders and Brynin (1999) do not distinguish among the male and female electorates, our estimates do highlight the importance of separating the electorate by gender.

Finally, we analyse the impact of the economic perceptions variables. Comparing the APEs across the distinct estimation samples gives rise to a clear pattern: the estimated APEs in the joint samples (Tables 9, 10) do provide support for economic voting theories, whereas, the respective APEs in the partisan estimates (Table 11) do not. Hence, restricting estimation to the partisan fraction of the electorate reduces the role of individual economic perceptions. This outcome contrasts with studies such as Evans and Pickup (2010) and Johnston *et al.* (2005), where egocentric evaluations are largely irrelevant for the entire electorate. Consequently, failing to study separately the partisan electorate can lead to misleading generalisations regarding the impact of egocentric economic evaluations.

TABLE 11.— PARTISAN CRE PROBIT AVERAGE PARTIAL EFFECTS ON THE PROBABILITY OF SNP SUPPORT, 1999-2006

	MALE			FEMALE		
Unbalanced (I-VI)	**I**	**II**	**III**	**IV**	**V**	**VI**
	Baseline	**Sample Dummy**	**Weights**	**Baseline**	**nple Dum**	**Weights**
	b/se	**b/se**	**b/se**	**b/se**	**b/se**	**b/se**
Lagged SNP Support	0.039	0.039	0.046***	0.034	0.034	0.033***
	(0.026)	(0.027)	(0.007)	(0.023)	(0.023)	(0.008)
Strong Party Support	0.020*	0.020*	0.022***	0.007	0.007	0.008*
	(0.011)	(0.011)	(0.006)	(0.008)	(0.008)	(0.004)
Employed/Self-employed	0.000	-0.001	0.005	0.008	0.008	0.014
	(0.018)	(0.018)	(0.010)	(0.020)	(0.020)	(0.011)
University Qualifications	-0.023	-0.022	-0.018	-0.015	-0.016	-0.028*
	(0.018)	(0.018)	(0.012)	(0.019)	(0.020)	(0.015)
Glasgow	-0.072**	-0.074**	-0.069**	-0.040*	-0.041	-0.059**
	(0.030)	(0.031)	(0.031)	(0.024)	(0.025)	(0.028)
Comfortably Financially	-0.009	-0.009	-0.015	-0.003	-0.003	-0.001
	(0.017)	(0.017)	(0.009)	(0.024)	(0.024)	(0.012)
Alright Financially	0.018	0.018	0.010*	0.002	0.002	0.006
	(0.015)	(0.015)	(0.006)	(0.023)	(0.023)	(0.011)
Just Getting by Financially	0.005	0.005	0.001	-0.006	-0.006	-0.008
	(0.012)	(0.012)	(0.006)	(0.020)	(0.020)	(0.011)
Better Finances vs last year	-0.001	-0.001	-0.005	-0.015	-0.015	-0.020***
	(0.010)	(0.010)	(0.006)	(0.010)	(0.010)	(0.007)
Worse Finances vs last year	0.016	0.016	0.017***	-0.007	-0.007	-0.004
	(0.011)	(0.011)	(0.005)	(0.009)	(0.009)	(0.006)
Expect Better Finances	0.003	0.003	0.002	0.013	0.013	0.016***
	(0.008)	(0.008)	(0.004)	(0.010)	(0.010)	(0.005)
Uncertain/Expect Worse Finances	-0.001	-0.001	0.001	0.004	0.004	0.003
	(0.012)	(0.012)	(0.006)	(0.013)	(0.013)	(0.006)
Sample Size	2,384	2,384	2,384	2,687	2,687	2,687

More specifically, the joint sample estimated APEs of economic perceptions (Tables 9 and 10) are in line with the predictions of post-election models of economic voting, where the voter's choice generally depends on retrospective economic evaluations. This is particularly true among the male electorate, where experiencing worse personal finances compared to the year before augments the probability of SNP support by over 2 percent across all of the unbalanced estimates and the balanced weighted sample estimates (see Table 9), and where perceiving a financial improvement has the opposite effect, being the statistical significance in this case limited to the unbalanced weighted and extension samples. Among the female electorate (Table 10), perceiving a financial improvement decreases the SNP support probability, but negative retrospective evaluations have no significant effect. Hence, the impact of retrospective evaluations is consistent with the presence of electoral accountability.

With respect to prospective evaluations, the interpretation of the results in

relation with the predictions of economic voting theories is less straightforward. Namely, pre-election models establish that optimistic expectations about changes in economic conditions will favour the incumbent government party whereas pessimistic expectations will favour the opposition party. We can see that the corresponding APEs estimated coefficients in the joint samples (not always statistically significant) have the wrong sign according to these theoretical implications. Nonetheless, a closer inspection of the male coefficient estimates in Tables 5 and 7 reveals that the positive sign of better future finances in Table 9 is driven by the partisan portion of the male electorate.

In particular, Table 5 reveals that the within-mean of uncertain/worse financial expectations constitutes the most important egocentric economic evaluation determinant of male SNP support, as it enters all estimates with positive statistically significant coefficients and the most sizeable magnitude. The male partisan estimates, on the other hand, reveal that the within-mean of better financial expectations significantly augments the SNP support probability with a sizeable coefficient (see Table 7). Hence, the positive impact of optimistic financial expectations on the male SNP support (Table 9) seems to be driven by the partisan portion of the male electorate. Thus, male voters systematically reporting pessimistic expectations are more likely to support the main opposition party, which is in line with economic (pre-election) voting theories.

Regarding the female prospective economic evaluations, the APEs (Tables 10 and 11) and the corresponding estimated parameter coefficients (Tables 6 and 7) clearly indicate that expectations play a much less prominent role than in the male estimations. Better expected finances also increase female support (though statistical significance varies) but, unlike in the male estimates, there is no evidence that this effect is driven by the partisan fraction of the electorate.

Concerning perceptions about the current financial situation, these are generally statistically insignificant (Tables 9, 10 and 11). However, the within-mean of alright current finances constitutes the most important egocentric evaluation determinant among partisan females, since it enters all estimates with a sizeable positive significant coefficient (Table 7). Therefore, consistently reporting good current finances among the partisan female electorate increases the probability of SNP support.

In summary, retrospective and prospective egocentric economic evaluations affect party support, their influence is consistent with the predictions of economic voting theories, they are more pronounced among male than female voters and less important among the partisan subsamples. Quite importantly, among the partisan fraction of the electorate, financial security is positively associated with SNP support.

4.3. Alternative Specification of the Dependent Variable: Incumbent Labour Party Support

During the entire period under study, the SNP constituted the main opposition to the leading governing Labour Party. So there might be voters who switch from Labour support to SNP support for retrospective reasons (*e.g.* attributing the responsibility of a worsening financial position to the incumbent party), event captured by the definition of the binary SNP support indicator, but other swing voters under the same circumstances might well decide to punish the incumbent Labour with a switch in favour of other political parties. In the latter case our dependent variable, SNP support, would record no change. In response to this, we

restructure the dependent variable so that it takes the value of one if an individual indicates Labour Party support and zero otherwise.

To ensure that the estimates employing the initial dependent variable specification do not merely identify nationalist propensity determinants, but also indicate economic voting behaviour, we reestimate all models in Tables 5-7 using instead the binary indicator for Labour support. The estimates for Labour party support (Appendix, Tables A7-A9) are effectively the mirror image of the results obtained using the SNP indicator specification: the economic factors augmenting opposition (SNP) support reduce incumbent (Labour) support and *vice-versa*. Hence, our initial SNP support specification is indeed an adequate measure that fits the purpose of identifying economic voting determinants generically outside the electoral cycle.

4.4. Economic Voting and the Electoral Cycle

The timing of policy choices is a crucial question in probabilistic voting models conceiving economic policies as the outcome of a well defined non-cooperative game. In pre-election models, parties/candidates formulate (enforceable) electoral promises and then compete for office (prospective evaluations). In post-election models, all the action in policy making takes place once elected politicians are in office and, rather than selecting policies, voters select politicians generally on the basis of their behaviour as incumbents (retrospective evaluations)- see for example, Persson and Tabellini (2000).

As political preferences do display some variation over time (see Tables 1-4) it is important to account for the dynamics triggered in different phases of the electoral cycle. The transition probability matrices for the two electoral cycles reveal non-negligible outflows of past Labour voters to other parties, not only the SNP but also Conservatives and Liberal Democrats, as well as towards not supporting any party (see Appendix, Tables A18-A21). Given that the short duration of the electoral cycles (four years) provides a small number of transitions and, as already mentioned, the binary SNP support indicator will not capture all of these outflows, identification of swing voting determinants over the electoral cycles requires the use of the Labour support indicator. Accordingly, we estimate incumbent Labour Party support determinants during the periods preceding the two elections: 1999-2002 and 2003-2006.

Following the UK 1997 general election, the Labour Party became the leading governing party in the UK, and after the establishment of the new Scottish Parliament in 1999, the Labour Party was also established as the governing party in the advent of the 1999 and 2003 Scottish Parliament elections. So the aforementioned periods could be viewed as both pre- and post-election periods. This is particularly reflected in the estimates for the first electoral cycle of 1999-2002 (Tables 12-13) where, both prospective and retrospective economic evaluations appear as significant determinants of Labour Party support with the latter having a greater impact.[24]

Over the 1999-2002 electoral cycle, both a repeated perceived deterioration of the financial situation with respect to the previous year (retrospective evaluation) and a repeated expectation of uncertain/worse finances (prospective evaluation) decrease the probability of support for the incumbent Labour Party. In the short run, however, expected uncertain/worse finances increases the probability of Labour Party support, perhaps reflecting that the incumbent government party is seen as a safer option. This economic voting behaviour holds across genders, though it is

more relevant in the male electorate (see Tables 12-13). These results are in line with the male SNP/Labour Party support estimates obtained for the whole period 1999-2006 (see Table 5, and Table A7 in the Appendix).

Over the 2003-2006 electoral cycle, repeatedly reporting improved finances increases the Labour support probability among female voters in all models, but economic voting behaviour is absent in the male electorate (Tables 14-15). Hence, regarding both electorate cycles retrospective economic evaluations appear to be a major determinant of party support preferences and, except for the male estimates over the 2003-2006 electoral cycle, the results do provide clear evidence that egocentric economic evaluations constitute an important factor of individual political support during the two intervening electoral cycles.

TABLE 12.—MALE DYNAMIC CRE PROBIT MODELS OF LABOUR PARTY SUPPORT, 1999-2002

Unbalanced (I-IV)/Balanced (V-VIII)	I	II	III	IV	V	VI	VII	VIII
	Baseline	Sample Dummy	Weights	Extension	Baseline	Sample Dummy	Weights	Extension
Lagged Labour Support	0.408*	0.409*	0.249	0.400*	0.357	0.357	0.212	0.342
Labour Supporter (1999)	3.910***	3.909***	4.162***	3.803***	4.231***	4.231***	4.402***	4.024***
Strong Party Support	0.079	0.079	0.050	-0.054	0.022	0.022	0.014	-0.177
m(Strong Party Support)	-0.200	-0.198	-0.282	-0.131	-0.259	-0.259	-0.361	-0.092
Current Financial Situation								
Comfortably Financially	-0.094	-0.095	-0.028	-0.099	0.030	0.030	0.089	0.026
m(Comfortably Financially)	0.918	0.916	0.651	0.893	0.897	0.898	0.862	0.705
Alright Financially	-0.333	-0.333	-0.150	-0.237	-0.298	-0.298	-0.086	-0.204
m(Alright Financially)	0.948	0.946	0.892	0.777	1.086	1.087	1.218	0.668
Just Getting by Financially	-0.214	-0.215	-0.133	-0.029	-0.179	-0.179	-0.103	0.034
m(Getting by Financially)	0.665	0.665	0.728	0.652	0.840	0.840	1.238	0.729
Change in Financial Position								
Better Finances vs last year	0.125	0.125	0.085	0.297*	0.162	0.161	0.120	0.313*
m(Better Finances vs last year)	-0.203	-0.205	-0.213	0.110	-0.502	-0.502	-0.419	0.023
Worse Finances vs last year	0.016	0.016	-0.110	0.103	0.032	0.032	-0.072	0.069
m(Worse Finances vs last year)	-0.974**	-0.976**	-0.964*	-0.869*	-1.315***	-1.314***	-1.232**	-1.210**
Financial Expectations								
Expect Better Finances	-0.202	-0.202	-0.161	-0.131	-0.232	-0.232	-0.219	-0.176
m(Expect Better Finances)	-0.215	-0.210	-0.217	-0.672	-0.190	-0.191	-0.256	-0.748
Uncertain/Expect Worse Finances	0.383	0.382	0.574**	0.617**	0.424	0.424	0.580**	0.606**
m(Uncertain/Expect Worse Finances)	-0.529	-0.532	-0.694	-0.965*	-0.544	-0.543	-0.752	-0.986*
Original Sample Member		0.065				-0.012		
Constant	-2.005***	-2.014***	-2.059***	-1.947***	-2.158***	-2.157***	-2.431***	-1.745**
Log-Likelihood	-694.517	-694.468	-725.378	-554.588	-612.701	-612.699	-642.983	-495.584
Sample Size	2,289	2,289	2,289	1,792	2,055	2,055	2,055	1,602
Wald (Global Significance)	249.663	250.541	190.460	208.955	207.552	208.426	157.791	184.071
Intra-Class Correlation	0.694***	0.694***	0.728***	0.696***	0.728***	0.728***	0.755***	0.729***

1. Only coefficients on selected key variables displayed. **2.** Estimations include all remaining explanatory variables appearing in Table 5.
3. Notes 1-7 appearing at the bottom of Table 5 also apply here.

TABLE 13.—FEMALE DYNAMIC CRE PROBIT MODELS OF LABOUR PARTY SUPPORT, 1999-2002

Unbalanced (I-IV)/Balanced (V-VIII)	I	II	III	IV	V	VI	VII	VIII
	Baseline	Sample Dummy	Weights	Extension	Baseline	Sample Dummy	Weights	Extension
Lagged Labour Support	0.514**	0.501**	0.788***	0.353	0.584***	0.574***	0.883***	0.394
Labour Supporter (1999)	4.121***	4.159***	3.668***	4.488***	4.058***	4.089***	3.588***	4.535***
Strong Party Support	0.091	0.093	0.073	-0.098	0.065	0.066	0.013	-0.108
m(Strong Party Support)	0.269	0.271	0.020	0.392	0.255	0.261	-0.087	0.371
Current Financial Situation								
Comfortably Financially	-0.039	-0.037	-0.056	0.038	-0.016	-0.012	0.031	0.080
m(Comfortably Financially)	0.375	0.387	0.406	-0.152	0.070	0.074	-0.127	-0.585
Alright Financially	0.034	0.035	-0.001	0.138	0.105	0.109	0.152	0.239
m(Alright Financially)	0.307	0.342	0.366	-0.008	-0.297	-0.277	-0.453	-0.835
Just Getting by Financially	0.061	0.061	-0.022	0.100	0.102	0.104	0.070	0.193
m(Getting by Financially)	0.452	0.441	0.604	0.312	0.296	0.289	0.315	-0.014
Change in Financial Position								
Better Finances vs last year	0.081	0.080	0.049	0.060	0.112	0.111	0.119	0.080
m(Better Finances vs last year)	-0.290	-0.312	-0.107	-0.379	-0.164	-0.174	-0.060	-0.282
Worse Finances vs last year	0.244	0.245	0.286	0.212	0.210	0.210	0.249	0.153
m(Worse Finances vs last year)	-0.852*	-0.838*	-0.759	-0.681	-1.267**	-1.251**	-1.294***	-1.327**
Financial Expectations								
Expect Better Finances	-0.055	-0.052	-0.054	-0.127	-0.064	-0.063	-0.062	-0.161
m(Expect Better Finances)	0.217	0.179	-0.034	0.224	-0.025	-0.065	-0.314	0.217
Uncertain/Expect Worse Finances	0.347	0.346	0.494*	0.373	0.521**	0.521**	0.690***	0.590**
m(Uncertain/Expect Worse Finances)	-0.105	-0.114	-0.622	-0.181	-0.273	-0.283	-0.853*	-0.082
Original Sample Member		-0.375*				-0.261		
Constant	-2.835***	-2.771***	-2.853***	-2.396***	-2.724***	-2.688***	-2.346***	-2.444***
Log-Likelihood	-754.309	-752.575	-690.817	-557.423	-624.325	-623.523	-559.612	-452.374
Sample Size	2,583	2,583	2,583	1,924	2,259	2,259	2,259	1,668
Wald (Global Significance)	264.286	261.137	301.829	177.661	256.214	253.876	310.112	165.370
Intra-Class Correlation	0.729***	0.730***	0.703***	0.751***	0.693***	0.694***	0.652***	0.725***

1. Only coefficients on selected key variables displayed. **2.** Estimations include all remaining explanatory variables appearing in Table 5.
3. Notes 1-7 appearing at the bottom of Table 5 also apply here.

TABLE 14.—MALE DYNAMIC CRE PROBIT MODELS OF LABOUR PARTY SUPPORT, 2003-2006

Unbalanced (I-IV)/Balanced (V-VIII)	I	II	III	IV	V	VI	VII	VIII
	Baseline	Sample Dummy	Weights	Extension	Baseline	Sample Dummy	Weights	Extension
Lagged Labour Support	0.682**	0.682**	0.568*	0.787**	0.679**	0.679**	0.553*	0.783**
Labour Supporter (2003)	3.507***	3.511***	3.770***	2.996***	3.535***	3.536***	3.788***	3.006***
Strong Party Support	-0.304	-0.303	-0.460*	-0.553**	-0.214	-0.214	-0.382	-0.456*
m(Strong Party Support)	0.387	0.394	0.588	0.522	0.211	0.216	0.404	0.363
Current Financial Situation								
Comfortably Financially	-0.555	-0.557	-0.526	-0.468	-0.684	-0.685	-0.637	-0.626
m(Comfortably Financially)	0.130	0.124	0.141	-0.262	0.657	0.654	0.875	0.296
Alright Financially	-0.420	-0.422	-0.340	-0.385	-0.515	-0.516	-0.426	-0.501
m(Alright Financially)	0.429	0.443	0.562	-0.045	1.041	1.047	1.360	0.518
Just Getting by Financially	-0.324	-0.325	-0.212	-0.182	-0.348	-0.348	-0.237	-0.216
m(Getting by Financially)	-0.505	-0.505	-0.705	-1.037	-0.112	-0.111	-0.120	-0.662
Change in Financial Position								
Better Finances vs last year	0.058	0.057	0.213	0.026	0.025	0.025	0.181	0.005
m(Better Finances vs last year)	0.263	0.269	-0.040	0.350	0.444	0.448	0.144	0.495
Worse Finances vs last year	-0.174	-0.174	-0.040	-0.120	-0.191	-0.191	-0.056	-0.131
m(Worse Finances vs last year)	0.282	0.316	0.135	0.388	0.584	0.603	0.523	0.690
Financial Expectations								
Expect Better Finances	0.055	0.055	0.083	0.132	-0.021	-0.020	0.019	0.052
m(Expect Better Finances)	-0.348	-0.338	-0.129	-0.498	-0.359	-0.353	-0.148	-0.517
Uncertain/Expect Worse Finances	-0.357	-0.356	-0.280	-0.337	-0.401	-0.400	-0.314	-0.392
m(Uncertain/Expect Worse Finances)	-0.505	-0.486	-0.757	-0.350	-0.527	-0.514	-0.803	-0.375
Original Sample Member		-0.203				-0.112		
Constant	-1.245	-1.241	-1.198	-0.552	-1.700**	-1.702**	-1.827**	-0.967
Log-Likelihood	-456.453	-456.102	-470.706	-383.229	-426.64	-426.541	-441.64	-356.215
Sample Size	1,676	1,676	1,676	1,330	1,572	1,572	1,572	1,242
Wald (Global Significance)	216.376	217.576	188.813	198.561	203.167	205.467	174.274	187.235
Intra-Class Correlation	0.629***	0.628***	0.662***	0.580***	0.632***	0.631***	0.663***	0.584***

1. Only coefficients on selected key variables displayed. **2.** Estimations include all remaining explanatory variables appearing in Table 5.
3. Notes 1-7 appearing at the bottom of Table 5 also apply here.

TABLE 15.—FEMALE DYNAMIC CRE PROBIT MODELS OF LABOUR PARTY SUPPORT, 2003-2006

Unbalanced (I-IV)/Balanced (V-VIII)	I	II	III	IV	V	VI	VII	VIII
	Baseline	Sample Dummy	Weights	Extension	Baseline	Sample Dummy	Weights	Extension
Lagged Labour Support	0.337	0.341	0.472	0.369	0.415	0.419	0.545	0.427
Labour Supporter (2003)	5.595***	5.624***	5.254***	5.459***	5.898***	5.958***	5.513***	5.895***
Strong Party Support	-0.335	-0.335	-0.072	-0.233	-0.372	-0.374	-0.098	-0.264
m(Strong Party Support)	0.701	0.729	0.567	0.730	0.313	0.316	0.189	0.326
Current Financial Situation								
Comfortably Financially	0.057	0.062	-0.317	0.010	-0.125	-0.121	-0.496	-0.153
m(Comfortably Financially)	-0.620	-0.697	-0.558	-0.783	-0.394	-0.545	-0.154	-1.137
Alright Financially	0.047	0.053	-0.283	-0.060	-0.179	-0.174	-0.459	-0.292
m(Alright Financially)	0.793	0.748	0.666	0.527	1.039	0.923	0.984	0.317
Just Getting by Financially	0.403	0.413	0.210	0.530	0.122	0.134	-0.049	0.321
m(Getting by Financially)	-0.736	-0.820	-0.853	-1.065	-0.633	-0.795	-0.536	-1.786
Change in Financial Position								
Better Finances vs last year	-0.344	-0.347	-0.239	-0.301	-0.313	-0.316	-0.337	-0.370
m(Better Finances vs last year)	1.201**	1.192**	1.125*	1.433**	1.302*	1.296*	1.525**	1.835**
Worse Finances vs last year	0.080	0.083	-0.009	0.213	-0.038	-0.036	-0.213	0.181
m(Worse Finances vs last year)	-0.469	-0.405	-0.563	-0.109	0.184	0.266	0.247	0.417
Financial Expectations								
Expect Better Finances	0.155	0.156	0.245	0.006	0.368	0.371	0.522**	0.220
m(Expect Better Finances)	-0.065	-0.115	0.008	0.242	0.010	-0.068	-0.038	0.482
Uncertain/Expect Worse Finances	-0.277	-0.280	-0.308	-0.247	-0.221	-0.221	-0.319	-0.116
m(Uncertain/Expect Worse Finances)	-0.233	-0.257	-0.282	-1.020	0.047	0.034	-0.014	-0.520
Original Sample Member		-0.395				-0.523		
Constant	-5.469***	-5.383***	4.214***	-5.794***	-5.906***	-5.741***	-4.842***	-5.946***
Log-Likelihood	-462.371	-461.693	-422.3	-355.786	-393.156	-392.222	-360.807	-299.082
Sample Size	1,869	1,869	1,869	1,400	1,683	1,683	1,683	1,254
Wald (Global Significance)	132.535	133.915	######	105.335	125.030	125.592	146.687	99.218
Intra-Class Correlation	0.831***	0.830***	0.806***	0.832***	0.838***	0.837***	0.820***	0.835***

1. Only coefficients on selected key variables displayed. **2.** Estimations include all remaining explanatory variables appearing in Table 5.
3. Notes 1-7 appearing at the bottom of Table 5 also apply here.

5. SUMMARY AND CONCLUSIONS

We explore the dynamics of SNP support using longitudinal data from the BHPS dataset during the period 1999-2006. Exploiting the Scottish extension sample, we investigate the relative importance of political sentiments and egocentric economic evaluations by disentangling the effects of state dependence and unobserved heterogeneity.

We study the evolution of gender-specific political party preferences both among the entire electorate and among the partisan subsample. We employ a dynamic specification, consider both compact unbalanced and balanced panel sample selection mechanisms, and account for initial conditions and unequal sample selection

probabilities.

Our main results can be summarised as follows. With respect to political sentiments, even after controlling for the unobserved heterogeneity, political party support preferences are quite persistent, being persistence generally stronger among the male electorate. The role of state dependence is, however, substantially reduced upon restricting estimations to the partisan subsample. The initial value of political party support is the most important determinant of party support, having markedly greater coefficient magnitudes compared to those of the lagged support variable. This indicates a considerable correlation between the unobserved individual heterogeneity and the initial condition, which is particularly accentuated among the partisan electorate.

Regarding egocentric economic evaluations, their impact on political party support differs by gender and depends on the voter's political proximity, exerting a stronger influence on the male SNP support. Considering the entire electorate samples, retrospective and prospective egocentric economic evaluations do affect political party support in accordance with the egocentric economic voting hypothesis: the electors hold the incumbent government party accountable for their personal financial situation. Among the partisan electorate, however, the role of egocentric economic evaluations is reduced. In fact, financial stability and optimism increase partisan support for the main opposition party, which is effectively at odds with economic voting theoretical predictions.

To ensure that our estimates are not merely capturing nationalist propensity determinants, and to account for outflows from the incumbent Labour to parties other than the SNP, we additionally estimate models of Labour party support. Employing the Labour support indicator shows that the economic evaluations that increase the opposition (SNP) support reduce incumbent (Labour) support and *vice-versa*.

Our study highlights the importance of employing longitudinal data over a sufficiently long time period for the analysis of the economic vote hypothesis. Indeed, the most prominent party support determinant for the entire male electorate, other than initial support, is consistently expecting uncertain/worse finances. Therefore, long-term differences in egocentric evaluations are more likely to influence political support as opposed to short-term evaluations, which is in line with the conclusion of Pickup and Evans (2013). Further, concerning the partisan electorate, systematically reporting alright current finances and better expected finances are the principal egocentric evaluation determinants of nationalist party support among females and males, respectively. Therefore, failure to perform separate estimations for the partisan electorate can lead to erroneous generalisations about the impact of egocentric economic evaluations.

Finally, we test the validity of the economic voting hypothesis accounting for the dynamics triggered in different phases of the electoral cycle. Estimating incumbent (Labour) support models during the two intervening electoral cycles (1999-2002 and 2003-2006) we find clear evidence that retrospective economic evaluations do constitute an important determinant of incumbent party support.

Our results are in agreement with studies providing supporting evidence for economic voting theories (*e.g.* Sanders and Brynin, 1999, Nadeau *et al.*, 2012) and contrasts with the works of Evans and Pickup (2010) and Johnston *et al.* (2005) concluding that egocentric evaluations are largely irrelevant for the entire electorate. The obvious future research direction is to verify whether our general conclusions about the economic voting hypothesis and partisanship can be validated among

distinct country electorates.

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Notes

[1]In another international comparative study Lewis-Beck and Stegmaier (2000) review a voluminous body of research concluding that sociotropic and egocentric economic evaluations do influence government support. Lewis-Beck and Stegmaier's (2013) review of micro-studies concludes that retrospective evaluations have a greater impact than prospective ones.

[2]Voting studies using the BHPS, other than Johnston *et al.* (2005), are not abundant and do not focus on the Scotland. Oswald and Powdthavee (2010) show that having daughters makes people more likely to vote for left-wing parties. Powdthavee and Oswald (2014) find that lottery winners, particularly males, tend to switch to more right-wing parties. Liberini *et al.* (2017), controlling for financial and economic circumstances, find that individuals that are more satisfied with life tend to vote for the governing party.

[3]University of Essex. Institute for Social and Economic Research. (2010). British Household Panel Survey: Waves 1-18, 1991-2009. [data collection]. 7th Ed. UK Data Service. SN: 5151, http://dx.doi.org/10.5255/UKDA-SN-5151-1; Conditional Access, Local Authority District Codes. [data collection]. 3rd Ed. UK Data Service. SN: 6028, http://dx.doi.org/10.5255/UKDA-SN-6028-1.

[4]Regional controls are formed according to the official Scottish Parliament electoral regions and constituencies as follows. Glasgow City, Lothians (East and Midlothian, Borders, Edinburgh City, West Lothians, Lothian n.o.s), Higlands and Islands (NW Highlands, Western Isles, S & E Highlands, Orkney, Shetlands, Highlands & Islands n.o.s), Central Scotland (Farlik, Cumbernauld & Kilsyth, Monklands, East Kilbride, Hamilton, Motherwell), West Scotland (Argyll & Bute, Dumbarton, Inverclyde, Bearsden, Clydebank, Strathkelvin, Cunninghame, Renfrew), South Scotland (Annadale, Nithsdale, Stewarty, Wigtown: Dumfries and Galloway, Clydesdale, Cumnock Doon, Kyle Carric, Eastwood, Kilmarnock & Loudoun, Dumfries and Galloway n.o.s), Mid Scotland and Fife (Clackmannan, Stirling, Dunfermline, Kirkcaldy, NE Fife, Angus, Perth & Kinross, Fife n.o.s.), North East Scotland (Aberdeen City, Bannfshire & Buchan, Moray, Gordon, Kincardine & Deeside, Dundee City).

[5]Sociotropic evaluations could be proxied, at least to certain extent, by regional gross domestic product growth and other macroeconomic indicators. However, we do not have data on such variables for the breakdown of the Local Authority controls included during the entire period analysed. Nevertheless, including regional macroeconomic variables would only add constants (displaying some annual variation) per regional grouping of individuals. This is already captured by the inclusion of regional controls and time period dummies.

[6]Equivalent income is computed as annual household income divided by the square root of household members to account for differences in households' size and composition.

[7]Liberini *et al.*, (2017) use equivalent income and retrospective evaluations. Sanders and Brynin (1999) include changes in egocentric evaluations and net personal annual income, whereas, Oswald and Powdthavee (2010) only use annual deflated household income per capita. The former get near zero coefficients on income.

[8]Further, the model assumes strict exogeneity of the $\mathbf{x}_{it}$ conditional on ε_i, as only $\mathbf{x}_{it}$ appears on the RHS of eq.(2) , while $\mathbf{x}_i=(\mathbf{x}_{i1}, ..., \mathbf{x}_{iT})$ enters in the conditioning set of the LHS. For unbalanced panels, we have to assume that the sample selection process is strictly exogenous with respect to the idiosyncratic shocks to y_{it} and that unbalancedness is independent of ε_i. Ignoring the unbalancedness can produce inconsistent parameter estimates unless the sample selection process is independent of initial condition shocks and, additionally, the process is either in a

steady state or the initial observations stem from the same exogenous distribution or selection rule $\forall\ i$ and t_i (see Albarran *et al.*, 2015, p.7).

[9]Fixed effects (FE) estimation leaves the conditional distribution of ε_i unrestricted but given fixed-T asymptotics we cannot obtain consistent MLE estimates of $\boldsymbol{\delta}$ due to the presence of ε_i in eq.(2), see Heckman (1981b). Carro (2007) offers a modified FE MLE for dynamic discrete choice though effective bias reduction requires $T \geqslant 8$. Honoré and Kyriazidou (2000) propose a fixed-T consistent (though not $\sqrt{N}$-consistent) estimator for dynamic discrete choice with continuous exogenous covariates requiring the logistic and further assumptions.

[10]Swing voters can be either ideologically neutral or not (defined as non-partisans/partisans in our analysis, respectively). Swing voting in this study reflects a change in voting intentions (not actual voting outcomes) among two consecutive time periods. This is somewhat distinct to the definition used in the literature whereby swinging refers to voting a different party from that of the previous electoral cycle

[11]Arulampalam and Stewart (2009) show that none of the Heckman (1981b) and Wooldridge (2005) estimators dominates the other and, once the Mundlak (1978)-Chamberlain (1984) correlated random effects (CRE) framework is employed the estimators give similar results.

[12]Failure to account for initial conditions and ignoring the presence of unobserved heterogeneity (ϑ_i) substantially inflates the impact of y_{it-1}(see Appendix, Tables *A*1-*A*3). Controlling for initial conditions but not accounting for the presence of ϑ_i still provides inconsistent parameter estimates and inflates the coefficients on y_{it-1}(see Appendix, Tables *A*4-*A*6).

[13]This version of estimator performs similarly, in terms of relative bias and RMSE, to the specification of the conditional distribution of unobserved heterogeneity in Wooldridge (2005) except for the case of an AR(1) process assumed for $\mathbf{x}_{it}$ with short panels (see Rabe-Hesketh and Skrondal, 2013).

[14]Albarran *et al.* (2015) suggest simultaneous estimation of all available contiguous sequences, that is sub-panels of observations with $T \geqslant 3$. As only left-side unbalancedness is present in our analysis, *i.e.,* different starting periods and a common ending period in 2006 ($T = 8$), this gives 6 distinct sub-panels. Nevertheless, 1999 is the sample initiation period for approximately 90.4 percent of individuals and distinct initiation period sub-panels do not contain sufficient observations, particularly as the panel lengthens. The same holds regarding the partisan subsamples where 1999 is the sample initiation period of approximately 88.5 percent individuals. Thus, we cannot apply this estimation strategy.

[15]We carry out sample attrition tests by adding functions of individual responses in our unbalanced estimations (see Verbeek and Nijman, 1992, p.688). The attrition-detection controls generally have positive statistically significant coefficients in the male samples and negative and insignificant in the female samples (the corresponding estimates are available upon request).

[16]The Scottish extension sample was aimed towards increasing the small sample size of around 400-500 households in the initial BHPS sample to approximately 1,500 respondent households (see Taylor *et al.*, Table 25, p.156, 2010).

[17]Longitudinal weights at any wave of the BHPS are a product of the sequence of attrition weights accounting for losses between each contiguous pair of waves up to that point, and the initial period respondent weight (see Taylor *et al.*, p.190, 2010). We employ the wLRWTSW2 respondent weight from the latest wave, 'w', in the longitudinal sequence as suggested by the data depositors when performing longitudinal analyses of individual respondents from the original and extension samples at the Scottish level (see Taylor *et al.*, Table 25, p.197, 2010).

[18]In the unweighted sample there are around 2.5 as many observations in Scotland than expected from the population distribution. Weighting in the BHPS employs a weighting class method where individuals are classified into respondents/non-respondents via variables that are informative of non-response such as age, sex, employment status and education. Initial sample members present in 1999 were eligible for a positive weight (as opposed to zero), regardless of previous waves' response status (see Taylor *et al.*, pp.192-5, 2010).

[19]Estimation with sampling weights is undertaken using the "gllamm" command in Stata assigning the respective longitudinal sampling weight (from the latest wave in the sequence) at the individual level (level 2) while the panel wave (level 1) weight is set to unity.

[20]Robust standard errors can be used since sampling weights do not apply to units at a lower level than the highest level (within the context of a multilevel model)- see Rabe-Hesketh and Skrondal (2006, pp.811-2).

[21]Including the objective annual equivalent household income along with the three subjective economic evaluations is another option, noting that annual household income and current finances are collinear to a certain extent. The respective estimations (available by the authors upon request) do not change our conclusions regarding the impact of individual retrospective and prospective evaluations.

[22]The presence of ϑ_i in equation (3) renders successive disturbances temporally correlated. The intra-class correlation coefficient ρ=corr(ν_{it}, ν_{is})=$\frac{\sigma^2_\vartheta}{\sigma^2_\vartheta+\sigma^2_\eta}$; t, s=2, ..., T; $t \neq s$ (normalising σ^2_η=1) is provided at the bottom of all CRE estimates and it is always statistically significant rendering pooled probit estimation inappropriate. In the pooled models, σ^2_ν is normalised to 1 and the estimated βs are population-averaged parameters by default.

[23]Bootstrap replications for CRE models with sampling weights are computationally very time-consuming. In estimating standard errors 50–200 bootstrap replications are generally sufficient (Mooney and Duval, 1993, p.11). Using 100 instead of 250 bootstrap replications in all CRE models without samlping weights had either minimal or no impact on the statistical significance of the APEs.

[24]We do not report the estimates for the partisan samples since t=4 in the two electoral cycles analysed is too short. This translates into an insufficiently large number of transitions so as to facilitate identification of swing voting behaviour among a fraction of the electorate that has particularly persistent voting preferences (the corresponding transition probabilities and the estimations are available upon request).

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